

SEQUENCE LISTING

<110> HSC Research Development Limited Partnership et al

<120> RAS Activator Nucleic Acid Molecules, Polypeptides and Methods of Use

<130> 1786/0019

<140> PCT/CA00/00042

<141> 2000-01-20

<150> 2,259,830

<151> 1999-01-20

<160> 27

<170> PatentIn Ver. 2.1

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<211> 6568

<212> DNA

<213> Homo sapiens

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<221> CDS

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Leu Leu Gly Gly Ser Glu Lys Gly Phe Gly Ile Phe Val Asp Ser Val		
405	410	415
Asp Ser Gly Ser Lys Ala Thr Glu Ala Gly Leu Lys Arg Gly Asp Gln		
420	425	430
Ile Leu Glu Val Asn Gly Gln Asn Phe Glu Asn Ile Gln Leu Ser Lys		
435	440	445
Ala Met Glu Ile Leu Arg Asn Asn Thr His Leu Ser Ile Thr Val Lys		
450	455	460
Thr Asn Leu Phe Val Phe Lys Glu Leu Leu Thr Arg Leu Ser Glu Glu		
465	470	475
Lys Arg Asn Gly Ala Pro His Leu Pro Lys Ile Gly Asp Ile Lys Lys		
485	490	495
Ala Ser Arg Tyr Ser Ile Pro Asp Leu Ala Val Asp Val Glu Gln Val		
500	505	510
Ile Gly Leu Glu Lys Val Asn Lys Lys Ser Lys Ala Asn Thr Val Gly		
515	520	525
Gly Arg Asn Lys Leu Lys Ile Leu Asp Lys Thr Arg Ile Ser Ile		
530	535	540
Leu Pro Gln Lys Pro Tyr Asn Asp Ile Gly Ile Gly Gln Ser Gln Asp		
545	550	555
Asp Ser Ile Val Gly Leu Arg Gln Thr Lys His Ile Pro Thr Ala Leu		
565	570	575
Pro Val Ser Gly Thr Leu Ser Ser Asn Pro Asp Leu Leu Gln Ser		
580	585	590
His His Arg Ile Leu Asp Phe Ser Ala Thr Pro Asp Leu Pro Asp Gln		
595	600	605
Val Leu Arg Val Phe Lys Ala Asp Gln Gln Ser Arg Tyr Ile Met Ile		
610	615	620
Ser Lys Asp Thr Thr Ala Lys Glu Val Val Ile Gln Ala Ile Arg Glu		
625	630	635
Phe Ala Val Thr Ala Thr Pro Asp Gln Tyr Ser Leu Cys Glu Val Ser		
645	650	655
Val Thr Pro Glu Gly Val Ile Lys Gln Arg Arg Leu Pro Asp Gln Leu		
660	665	670
Ser Lys Leu Ala Asp Arg Ile Gln Leu Ser Gly Arg Tyr Tyr Leu Lys		
675	680	685
Asn Asn Met Glu Thr Glu Thr Leu Cys Ser Asp Glu Asp Ala Gln Glu		
690	695	700

Leu Leu Arg Glu Ser Gln Ile Ser Leu Leu Gln Leu Ser Thr Val Glu
705 710 715 720
Val Ala Thr Gln Leu Ser Met Arg Asn Phe Glu Leu Phe Arg Asn Ile
725 730 735
Glu Pro Thr Glu Tyr Ile Asp Asp Leu Phe Lys Leu Arg Ser Lys Thr
740 745 750
Ser Cys Ala Asn Leu Lys Arg Phe Glu Glu Val Ile Asn Gln Glu Thr
755 760 765
Phe Trp Val Ala Ser Glu Ile Leu Arg Glu Thr Asn Gln Leu Lys Arg
770 775 780
Met Lys Ile Ile Lys His Phe Ile Lys Ile Ala Leu His Cys Arg Glu
785 790 795 800
Cys Lys Asn Phe Asn Ser Met Phe Ala Ile Ile Ser Gly Leu Asn Leu
805 810 815
Ala Pro Val Ala Arg Leu Arg Thr Thr Trp Glu Lys Leu Pro Asn Lys
820 825 830
Tyr Glu Lys Leu Phe Gln Asp Leu Gln Asp Leu Phe Asp Pro Ser Arg
835 840 845
Asn Met Ala Lys Tyr Arg Asn Val Leu Asn Ser Gln Asn Leu Gln Pro
850 855 860
Pro Ile Ile Pro Leu Phe Pro Val Ile Lys Lys Asp Leu Thr Phe Leu
865 870 875 880
His Glu Gly Asn Asp Ser Lys Val Asp Gly Leu Val Asn Phe Glu Lys
885 890 895
Leu Arg Met Ile Ala Lys Glu Ile Arg His Val Gly Arg Met Ala Ser
900 905 910
Val Asn Met Asp Pro Ala Leu Met Phe Arg Thr Arg Lys Lys Lys Trp
915 920 925
Arg Ser Leu Gly Ser Leu Ser Gln Gly Ser Thr Asn Ala Thr Val Leu
930 935 940
Asp Val Ala Gln Thr Gly Gly His Lys Lys Arg Val Arg Arg Ser Ser
945 950 955 960
Phe Leu Asn Ala Lys Lys Leu Tyr Glu Asp Ala Gln Met Ala Arg Lys
965 970 975
Val Lys Gln Tyr Leu Ser Asn Leu Glu Leu Glu Met Asp Glu Glu Ser
980 985 990
Leu Gln Thr Leu Ser Leu Gln Cys Glu Pro Ala Thr Asn Thr Leu Pro
995 1000 1005
Lys Asn Pro Gly Asp Lys Lys Pro Val Lys Ser Glu Thr Ser Pro Val
1010 1015 1020
Ala Pro Arg Ala Gly Ser Gln Gln Lys Ala Gln Ser Leu Pro Gln Pro
1025 1030 1035 1040
Gln Gln Gln Pro Pro Pro Ala His Lys Ile Asn Gln Gly Leu Gln Val
1045 1050 1055
Pro Ala Val Ser Leu Tyr Pro Ser Arg Lys Lys Val Pro Val Lys Asp
1060 1065 1070
Leu Pro Pro Phe Gly Ile Asn Ser Pro Gln Ala Leu Lys Lys Ile Leu
1075 1080 1085
Ser Leu Ser Glu Glu Gly Ser Leu Glu Arg His Lys Lys Gln Ala Glu
1090 1095 1100
Asp Thr Ile Ser Asn Ala Ser Ser Gln Leu Ser Ser Pro Pro Thr Ser
1105 1110 1115 1120
Pro Gln Ser Ser Pro Arg Lys Gly Tyr Thr Leu Ala Pro Ser Gly Thr
1125 1130 1135
Val Asp Asn Phe Ser Asp Ser Gly His Ser Glu Ile Ser Ser Arg Ser
1140 1145 1150
Ser Ile Val Ser Asn Ser Ser Phe Asp Ser Val Pro Val Ser Leu His

1155 1160 1165
 Asp Glu Arg Arg Gln Arg His Ser Val Ser Ile Val Glu Thr Asn Leu
 1170 1175 1180
 Gly Met Gly Arg Met Glu Arg Arg Thr Met Ile Glu Pro Asp Gln Tyr
 1185 1190 1195 1200
 Ser Leu Gly Ser Tyr Ala Pro Met Ser Glu Gly Arg Gly Leu Tyr Ala
 1205 1210 1215
 Thr Ala Thr Val Ile Ser Ser Pro Ser Thr Glu Glu Leu Ser Gln Asp
 1220 1225 1230
 Gln Gly Asp Arg Ala Ser Leu Asp Ala Ala Asp Ser Gly Arg Gly Ser
 1235 1240 1245
 Trp Thr Ser Cys Ser Ser Gly Ser His Asp Asn Ile Gln Thr Ile Gln
 1250 1255 1260
 His Gln Arg Ser Trp Glu Thr Leu Pro Phe Gly His Thr His Phe Asp
 1265 1270 1275 1280
 Tyr Ser Gly Asp Pro Ala Gly Leu Trp Ala Ser Ser Ser His Met Asp
 1285 1290 1295
 Gln Ile Met Phe Ser Asp His Ser Thr Lys Tyr Asn Arg Gln Asn Gln
 1300 1305 1310
 Ser Arg Glu Ser Leu Glu Gln Ala Gln Ser Arg Ala Ser Trp Ala Ser
 1315 1320 1325
 Ser Thr Gly Tyr Trp Gly Glu Asp Ser Glu Gly Asp Thr Gly Thr Ile
 1330 1335 1340
 Lys Arg Arg Gly Gly Lys Asp Val Ser Ile Glu Ala Glu Ser Ser Ser
 1345 1350 1355 1360
 Leu Thr Ser Val Thr Thr Glu Glu Thr Lys Pro Val Pro Met Pro Ala
 1365 1370 1375
 His Ile Ala Val Ala Ser Ser Thr Thr Lys Gly Leu Ile Ala Arg Lys
 1380 1385 1390
 Glu Gly Arg Tyr Arg Glu Pro Pro Pro Thr Pro Pro Gly Tyr Ile Gly
 1395 1400 1405
 Ile Pro Ile Thr Asp Phe Pro Glu Gly His Ser His Pro Ala Arg Lys
 1410 1415 1420
 Pro Pro Asp Tyr Asn Val Ala Leu Gln Arg Ser Arg Met Val Ala Arg
 1425 1430 1435 1440
 Ser Ser Asp Thr Ala Gly Pro Ser Ser Val Gln Gln Pro His Gly His
 1445 1450 1455
 Pro Thr Ser Ser Arg Pro Val Asn Lys Pro Gln Trp His Lys Pro Asn
 1460 1465 1470
 Glu Ser Asp Pro Arg Leu Ala Pro Tyr Gln Ser Gln Gly Phe Ser Thr
 1475 1480 1485
 Glu Glu Asp Glu Asp Glu Gln Val Ser Ala Val
 1490 1495

<210> 3
 <211> 799
 <212> DNA
 <213> Mus musculus

<400> 3
 actaaaaggga acaaaagctg gagctccacc gcgggtggcg ggccgtctaga actagtggat 60
 cccccgggct gcaggaattc aagcggtggg aaggatgtct ccgcgtgaggc agagagcagc 120
 agcatggtgc ccgtgactac agagagaagcc aaacctgtcc ctatgcctgc ccacatagtct 180
 gtgacgcccga gcactaccaa gggactcatc gcacggaagg aaggcaggtt ccgggagccg 240
 cctcccacac ctccaggcta cgtggcata cccattgccg atttccaga agggccttgc 300

cacccggcca ggaagcccc ggattacaac gtggccctgc agcggtcccg catggtggca 360
cggcccaactg aggccccggc accggggccag acgcccgcctg cagccgcagc cagccggccg 420
ggcagcaagc cacagtggca caagccccagc gacgcagacc cacgcctcgc gcccttcag 480
gcaggcttcg caggagcgaa ggagacgaa gatgaacaag tgtctgtgt ttgaggcgca 540
ggctccttga tccacagtga gccacccaaa ggagagcaca agaagacgtc ccaagccttg 600
gagcccttggc acgcacatct gaggatggtg gaccagtttgcctccttccc tgcccttaag 660
cagcatgggg ctcttctcc ctcttcttgcatgtgaaat actgtgaaga 720
aattgccctg gcactttgca gacttgttgc ttgaaatgca cagcccgca gcccctgagc 780
tgctgcctgc cacgtcacg 799

<210> 4
<211> 286
<212> PRT
<213> Homo sapiens

<400> 4
Thr Lys Gly Asn Lys Ser Trp Ser Ser Thr Ala Val Ala Ala Ala Leu
1 5 10 15

Glu Leu Val Asp Pro Pro Gly Cys Arg Asn Ser Ser Gly Gly Lys Asp
20 25 30

Val Ser Ala Glu Ala Glu Ser Ser Ser Met Val Pro Val Thr Thr Glu
35 40 45

Glu Ala Lys Pro Val Pro Met Pro Ala His Ile Ala Val Thr Pro Ser
50 55 60

Thr Thr Lys Gly Leu Ile Ala Arg Lys Glu Gly Arg Tyr Arg Glu Pro
65 70 75 80

Pro Pro Thr Pro Pro Gly Tyr Val Gly Ile Pro Ile Ala Asp Phe Pro
85 90 95

Glu Gly Pro Cys His Pro Ala Arg Lys Pro Pro Asp Tyr Asn Val Ala
100 105 110

Leu Gln Arg Ser Arg Met Val Ala Arg Pro Thr Glu Ala Pro Ala Pro
115 120 125

Gly Gln Thr Pro Pro Ala Ala Ala Ser Arg Pro Gly Ser Lys Pro
130 135 140

Gln Trp His Lys Pro Ser Asp Ala Asp Pro Arg Leu Ala Pro Phe Gln
145 150 155 160

Ala Ala Ser His Ser Gly Thr Ser Pro Ala Thr Gln Thr His Ala Ser
165 170 175

Arg Pro Ser Arg Gln Ala Ser Gln Glu Arg Arg Arg Thr Lys Met Asn
180 185 190

Lys Cys Leu Leu Phe Glu Ala Gln Ala Pro Xaa Ser Thr Val Ser His
195 200 205

Pro Lys Glu Ser Thr Arg Arg Arg Pro Lys Pro Trp Ser Leu Gly Thr

210

215

220

His Ile Xaa Gly Trp Trp Thr Ser Leu Pro Pro Ser Leu Pro Xaa Ser
225 230 235 240

Ser Met Gly Leu Leu Leu Pro Phe Phe Leu Ser Pro Leu His Val Lys
245 250 255

Tyr Cys Glu Glu Ile Ala Ala Leu Cys Arg Leu Val Ala Xaa Asn
260 265 270

Ala Gln Pro Ser Ser Pro Xaa Ala Ala Ala Cys His Val Thr
275 280 285

<210> 5

<211> 245

<212> PRT

<213> Homo sapiens

<400> 5

Leu Lys Gly Thr Lys Ala Gly Ala Pro Pro Arg Trp Arg Pro Leu Xaa
1 5 10 15

Asn Xaa Trp Ile Pro Arg Ala Ala Gly Ile Gln Ala Val Gly Arg Met
20 25 30

Ser Pro Leu Arg Gln Arg Ala Ala Ala Trp Cys Pro Xaa Leu Gln Arg
35 40 45

Lys Pro Asn Leu Ser Leu Cys Leu Pro Thr Xaa Leu Xaa Arg Arg Ala
50 55 60

Leu Pro Arg Asp Ser Ser His Gly Arg Lys Ala Gly Thr Gly Ser Arg
65 70 75 80

Leu Pro His Leu Gln Ala Thr Trp Ala Ser Pro Leu Pro Ile Ser Gln
85 90 95

Lys Gly Leu Ala Thr Arg Pro Gly Ser Pro Arg Ile Thr Thr Trp Pro
100 105 110

Cys Ser Gly Pro Ala Trp Trp His Gly Pro Leu Arg Pro Arg His Arg
115 120 125

Ala Arg Arg Arg Leu Gln Pro Gln Pro Ala Gly Arg Arg Leu Arg Arg
130 135 140

Ser Gly Gly Arg Arg Xaa Thr Ser Val Cys Cys Leu Arg Arg Arg
145 150 155 160

Leu Leu Asp Pro Gln Xaa Ala Thr Gln Arg Arg Ala Gln Glu Asp Val
165 170 175

Pro Ser Leu Gly Ala Leu Ala Arg Thr Ser Glu Asp Gly Gly Pro Val
180 185 190

Cys Leu Leu Pro Cys Leu Lys Ala Ala Trp Gly Phe Phe Ser Pro Ser
195 200 205

Ser Phe Pro Leu Cys Met Xaa Asn Thr Val Lys Lys Leu Pro Trp His
210 215 220

Phe Ala Asp Leu Leu Leu Glu Met His Ser Pro Ala Ala Pro Glu Leu
225 230 235 240

Leu Pro Ala Thr Ser
245

<210> 6
<211> 266
<212> PRT
<213> Homo sapiens

<400> 6

Xaa Arg Glu Gln Lys Leu Glu Leu His Arg Gly Gly Gly Arg Ser Arg
1 5 10 15

Thr Ser Gly Ser Pro Gly Leu Gln Glu Phe Lys Arg Trp Glu Gly Cys
20 25 30

Leu Arg Xaa Gly Arg Glu Gln Gln His Gly Ala Arg Asp Tyr Arg Gly
35 40 45

Ser Gln Thr Cys Pro Tyr Ala Cys Pro His Ser Cys Asp Ala Glu His
50 55 60

Tyr Gln Gly Thr His Arg Thr Glu Gly Arg Gln Val Pro Gly Ala Ala
65 70 75 80

Ser His Thr Ser Arg Leu Arg Gly His Pro His Cys Arg Phe Pro Arg
85 90 95

Arg Ala Leu Pro Pro Gly Gln Glu Ala Pro Gly Leu Gln Arg Gly Pro
100 105 110

Ala Ala Val Pro His Gly Gly Thr Ala His Xaa Gly Pro Gly Thr Gly
115 120 125

Pro Asp Ala Ala Cys Ser Arg Ser Gln Pro Ala Gly Gln Gln Ala Thr
130 135 140

Val Ala Gln Ala Gln Arg Arg Arg Pro Thr Pro Arg Ala Leu Pro Gly
145 150 155 160

Ala Gly Phe Ala Gly Ala Glu Glu Asp Glu Asp Glu Gln Val Ser Ala
165 170 175

Val Xaa Gly Ala Gly Ser Leu Ile His Ser Glu Pro Pro Lys Gly Glu
180 185 190

His Lys Lys Thr Ser Gln Ala Leu Glu Pro Trp His Ala His Leu Arg
195 200 205

Met Val Asp Gln Phe Ala Ser Phe Pro Ala Leu Lys Gln His Gly Ala
210 215 220

Ser Ser Pro Leu Leu Pro Phe Pro Phe Ala Cys Glu Ile Leu Xaa Arg
225 230 235 240

Asn Cys Pro Gly Thr Leu Gln Thr Cys Cys Leu Lys Cys Thr Ala Gln
245 250 255

Gln Pro Leu Ser Cys Cys Leu Pro Arg His
260 265

<210> 7
<211> 307
<212> PRT
<213> Drosophila melanogaster

<400> 7

Ser Asn Val His Phe Leu His Leu Asn Ala Tyr Glu Leu Ala Ile Gln
1 5 10 15

Leu Thr Leu Gln Asp Phe Ala Asn Phe Arg Gln Ile Glu Ser Thr Glu
20 25 30

Tyr Val Asp Glu Leu Phe Glu Leu Arg Ser Arg Tyr Gly Val Pro Met
35 40 45

Leu Ser Lys Phe Ala Glu Leu Val Asn Arg Glu Met Phe Trp Val Val
50 55 60

Ser Glu Ile Cys Ala Glu His Asn Ile Val Arg Arg Met Lys Ile Val
65 70 75 80

Lys Gln Phe Ile Lys Ile Ala Arg His Cys Lys Glu Cys Arg Asn Phe
85 90 95

Asn Ser Met Phe Ala Ile Val Ser Gly Leu Gly His Gly Ala Val Ser
100 105 110

Arg Leu Arg Gln Thr Trp Glu Lys Leu Pro Ser Lys Tyr Gln Arg Leu
115 120 125

Phe Asn Asp Leu Gln Asp Leu Met Asp Pro Ser Arg Asn Met Ser Lys
130 135 140

Tyr Arg Gln Leu Val Ser Ala Glu Leu Leu Ala Gln His Pro Ile Ile
145 150 155 160

Pro Phe Tyr Pro Ile Val Lys Lys Asp Leu Thr Phe Ile His Leu Gly
165 170 175

Asn Asp Thr Arg Val Asp Gly Leu Val Asn Phe Glu Lys Leu Arg Met
180 185 190

Leu Ala Lys Glu Val Arg Leu Leu Thr His Met Cys Ser Ser Pro Tyr

195

200

205

Asp Leu Leu Ser Ile Leu Glu Leu Lys Gly Gln Ser Pro Ser Asn Ala
210 215 220

Leu Phe Ser Leu Asn Gln Met Ser Ala Ser Gln Ser Asn Ala Ala Ala
225 230 235 240

Gly Thr Val Ile Ala Ala Asn Ala Gly Gln Ala Thr Ile Lys Arg Arg
245 250 255

Lys Lys Ser Thr Ala Ala Pro Asn Pro Lys Lys Met Phe Glu Glu Ala
260 265 270

Gln Met Val Arg Arg Val Lys Ala Tyr Leu Asn Ser Leu Lys Ile Leu
275 280 285

Ser Asp Glu Asp Leu Leu His Lys Phe Ser Leu Glu Cys Glu Pro Ala
290 295 300

His Gly Ser

305

<210> 8

<211> 270

<212> PRT

<213> Homo sapiens

<400> 8

Ser Ala Glu Gly Leu Asp Leu Val Ser Ala Lys Asp Leu Ala Gly Gln
1 5 10 15

Leu Thr Asp His Asp Trp Ser Leu Phe Asn Ser Ile His Gln Val Glu
20 25 30

Leu Ile His Tyr Val Leu Gly Pro Gln His Leu Arg Asp Val Thr Thr
35 40 45

Ala Asn Leu Glu Arg Phe Met Arg Arg Phe Asn Glu Leu Gln Tyr Trp
50 55 60

Val Ala Thr Glu Leu Cys Leu Cys Pro Val Pro Gly Pro Arg Ala Gln
65 70 75 80

Leu Leu Arg Lys Phe Ile Lys Leu Ala Ala His Leu Lys Glu Gln Lys
85 90 95

Asn Leu Asn Ser Phe Phe Ala Val Met Phe Gly Leu Ser Asn Ser Ala
100 105 110

Ile Ser Arg Leu Ala His Thr Trp Glu Arg Leu Pro His Lys Val Arg
115 120 125

Lys Leu Tyr Ser Ala Leu Glu Arg Leu Leu Asp Pro Ser Trp Asn His
130 135 140

Arg Val Tyr Arg Leu Ala Leu Ala Lys Leu Ser Pro Pro Val Ile Pro
145 150 155 160

Phe Met Pro Leu Leu Leu Lys Asp Met Thr Phe Ile His Glu Gly Asn
165 170 175

His Thr Leu Val Glu Asn Leu Ile Asn Phe Glu Lys Met Arg Met Met
180 185 190

Ala Arg Ala Ala Arg Met Leu His His Cys Arg Ser His Asn Pro Val
195 200 205

Pro Leu Ser Pro Leu Arg Ser Arg Val Ser His Leu His Glu Asp Ser
210 215 220

Gln Val Ala Arg Ile Ser Thr Cys Ser Glu Gln Ser Leu Ser Thr Arg
225 230 235 240

Ser Pro Ala Ser Thr Trp Ala Tyr Val Gln Gln Leu Lys Val Ile Asp
245 250 255

Asn Gln Arg Glu Leu Ser Arg Leu Ser Arg Glu Leu Glu Pro
260 265 270

<210> 9
<211> 244
<212> PRT
<213> Mus musculus

<400> 9
Lys Ala Glu Cys Phe Glu Thr Leu Ser Ala Met Glu Leu Ala Glu Gln
1 5 10 15

Ile Thr Leu Leu Asp His Ile Val Phe Arg Ser Ile Pro Tyr Glu Glu
20 25 30

Phe Leu Gly Gln Gly Trp Met Lys Leu Asp Lys Asn Glu Arg Thr Pro
35 40 45

Tyr Ile Met Lys Thr Ser Gln His Phe Asn Glu Met Ser Asn Leu Val
50 55 60

Ala Ser Gln Ile Met Asn Tyr Ala Asp Ile Ser Ser Arg Pro Asn Ala
65 70 75 80

Ile Glu Lys Trp Val Ala Val Ala Asp Ile Cys Arg Cys Leu His Asn
85 90 95

Tyr Asn Gly Val Leu Glu Ile Thr Ser Ala Leu Asn Arg Ser Pro Ile
100 105 110

Tyr Arg Leu Lys Lys Thr Trp Ala Lys Val Ser Lys Gln Thr Lys Ala
115 120 125

Leu Met Asp Lys Leu Gln Lys Thr Val Ser Ser Glu Gly Arg Phe Lys
130 135 140

Asn Leu Arg Glu Thr Leu Lys Asn Cys Asn Pro Pro Ala Val Pro Tyr
145 150 155 160
Leu Gly Met Tyr Leu Thr Asp Leu Ala Phe Ile Glu Glu Gly Thr Pro
165 170 175
Asn Phe Thr Glu Glu Gly Leu Val Asn Phe Ser Lys Met Arg Met Ile
180 185 190
Ser His Ile Ile Arg Glu Ile Arg Gln Phe Gln Gln Thr Ala Tyr Arg
195 200 205
Ile Asp Gln Gln Pro Lys Val Ile Gln Tyr Leu Leu Asp Lys Ala Leu
210 215 220
Val Ile Asp Glu Asp Ser Leu Tyr Glu Leu Ser Leu Lys Ile Glu Pro
225 230 235 240
Arg Leu Pro Ala

<210> 10
<211> 249
<212> PRT
<213> Homo sapiens

<400> 10
Asp Glu Ile Thr Leu Leu Thr Leu His Pro Leu Glu Leu Ala Arg Gln
1 5 10 15
Leu Thr Leu Leu Glu Phe Glu Met Tyr Lys Asn Val Lys Pro Ser Glu
20 25 30
Leu Val Gly Ser Pro Trp Thr Lys Lys Asp Lys Glu Val Lys Ser Pro
35 40 45
Asn Leu Leu Lys Ile Met Lys His Thr Thr Asn Val Thr Arg Trp Ile
50 55 60
Glu Lys Ser Ile Thr Glu Ala Glu Asn Tyr Glu Glu Arg Leu Ala Ile
65 70 75 80
Met Gln Arg Ala Ile Glu Val Met Met Val Met Leu Glu Leu Asn Asn
85 90 95
Phe Asn Gly Ile Leu Ser Ile Val Ala Ala Met Gly Thr Ala Ser Val
100 105 110
Tyr Arg Leu Arg Trp Thr Phe Gln Gly Leu Pro Glu Arg Tyr Arg Lys
115 120 125
Phe Leu Glu Glu Cys Arg Glu Leu Ser Asp Asp His Leu Lys Lys Tyr
130 135 140
Gln Glu Arg Leu Arg Ser Ile Asn Pro Pro Cys Val Pro Phe Phe Gly

145 150 155 160
Arg Tyr Leu Thr Asn Ile Leu His Leu Glu Glu Gly Asn Pro Asp Leu
165 170 175
Leu Ala Asn Thr Glu Leu Ile Asn Phe Ser Lys Arg Arg Lys Val Ala
180 185 190
Glu Ile Ile Gly Glu Ile Gln Gln Tyr Gln Asn Gln Pro Tyr Cys Leu
195 200 205
Asn Glu Glu Ser Thr Ile Arg Gln Phe Phe Glu Gln Leu Asp Pro Phe
210 215 220
Asn Gly Leu Ser Asp Lys Gln Met Ser Asp Tyr Leu Tyr Asn Glu Ser
225 230 235 240
Leu Arg Ile Glu Pro Arg Gly Cys Lys
245

<210> 11
<211> 243
<212> PRT
<213> Homo sapiens

<400> 11
Val Ser Leu Leu Phe Asp His Leu Glu Pro Glu Glu Leu Ser Glu His
1 5 10 15
Leu Thr Tyr Leu Glu Phe Lys Ser Phe Arg Arg Ile Ser Phe Ser Asp
20 25 30
Tyr Gln Asn Tyr Leu Val Asn Ser Cys Val Lys Glu Asn Pro Thr Met
35 40 45
Glu Arg Ser Ile Ala Leu Cys Asn Gly Ile Ser Gln Trp Val Gln Leu
50 55 60
Met Val Leu Ser Arg Pro Thr Pro Gln Leu Arg Ala Glu Val Phe Ile
65 70 75 80
Lys Phe Ile Gln Val Ala Gln Lys Leu His Gln Leu Gln Asn Phe Asn
85 90 95
Thr Leu Met Ala Val Ile Gly Gly Leu Cys His Ser Ser Ile Ser Arg
100 105 110
Leu Lys Glu Thr Ser Ser His Val Pro His Glu Ile Asn Lys Val Leu
115 120 125
Gly Glu Met Thr Glu Leu Leu Ser Ser Ser Arg Asn Tyr Asp Asn Tyr
130 135 140
Arg Arg Ala Tyr Gly Glu Cys Thr Asp Phe Lys Ile Pro Ile Leu Gly
145 150 155 160

Val His Leu Lys Asp Leu Ile Ser Leu Tyr Glu Ala Met Pro Asp Tyr
165 170 175

Leu Glu Asp Gly Lys Val Asn Val His Lys Leu Leu Ala Leu Tyr Asn
180 185 190

His Ile Ser Glu Leu Val Gln Leu Gln Glu Val Ala Pro Pro Leu Glu
195 200 205

Ala Asn Lys Asp Leu Val His Leu Leu Thr Leu Ser Leu Asp Leu Tyr
210 215 220

Tyr Thr Glu Asp Glu Ile Tyr Glu Leu Ser Tyr Ala Arg Glu Pro Arg
225 230 235 240

Asn His Arg

<210> 12

<211> 48

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: unavailable

<400> 12

Ile Arg Gly Gly Thr Lys Glu Ala Leu Ile Glu His Leu Thr Ser His
1 5 10 15

Glu Leu Val Asp Ala Ala Phe Asn Val Thr Met Leu Ile Thr Phe Arg
20 25 30

Ser Ile Leu Thr Thr Arg Glu Phe Phe Tyr Ala Leu Ile Tyr Arg Tyr
35 40 45

<210> 13

<211> 47

<212> PRT

<213> Mus musculus

<400> 13

Ile Lys Gly Gly Thr Val Val Lys Leu Ile Glu Arg Leu Thr Tyr His
1 5 10 15

Met Tyr Ala Asp Pro Asn Phe Val Arg Thr Phe Leu Thr Tyr Arg Ser
20 25 30

Phe Cys Lys Gln Glu Leu Leu Asn Leu Leu Ile Glu Arg Phe Glu
35 40 45

<210> 14
<211> 48
<212> PRT
<213> Mus musculus

<400> 14
Ile Arg Tyr Ala Ser Val Glu Ala Leu Leu Glu Arg Leu Thr Asp Leu
1 5 10 15

Arg Phe Leu Ser Ile Asp Phe Leu Asn Thr Phe Leu His Thr Tyr Arg
20 25 30

Ile Phe Thr Thr Ala Thr Val Val Leu Ala Lys Leu Ser Asp Ile Tyr
35 40 45

<210> 15
<211> 50
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: unavailable

<400> 15
Val Val Lys Phe Ala Ser Leu Asn Lys Leu Val Glu His Leu Thr His
1 5 10 15

Asp Ser Lys His Asp Leu Gln Phe Leu Lys Thr Phe Leu Met Thr Tyr
20 25 30

Gln Ser Phe Cys Thr Pro Glu Lys Leu Met Ser Lys Leu Gln Gln Arg
35 40 45

Tyr Xaa
50

<210> 16
<211> 77
<212> PRT
<213> Drosophila melanogaster

<400> 16
Leu Thr Arg Ser Ser Arg Asp Glu Pro Leu Asn Phe Arg Ile Val Gly
1 5 10 15

Gly Tyr Glu Leu Arg Gly Val Ala Ile Ala Thr Gly Asn Ala Ala Val
20 25 30

Gly Ile Tyr Ile Ser His Val Glu Pro Gly Ser Lys Ala Gln Asp Val
35 40 45

Gly Leu Lys Arg Gly Asp Gln Ile His Glu Val Asn Gly Gln Ser Leu

50

55

60

Asp His Val Thr Ser Lys Arg Ala Leu Glu Ile Leu Thr
65 70 75

<210> 17
<211> 71
<212> PRT
<213> Homo sapiens

<400> 17
Asn Leu Lys Lys Asp Ala Lys Tyr Gly Leu Gly Phe Gln Ile Ile Gly
1 5 10 15

Gly Glu Lys Met Gly Arg Leu Asp Leu Gly Ile Phe Ile Ser Ser Val
20 25 30

Ala Pro Gly Gly Pro Ala Asp Leu Asp Gly Cys Leu Lys Pro Gly Asp
35 40 45

Arg Leu Ile Ser Val Asn Ser Val Ser Leu Glu Gly Val Ser His His
50 55 60

Ala Ala Ile Glu Ile Leu Gln
65 70

<210> 18
<211> 67
<212> PRT
<213> Homo sapiens

<400> 18
Ile Val Ile His Arg Gly Ser Thr Gly Leu Gly Phe Asn Ile Val Gly
1 5 10 15

Gly Glu Asp Gly Glu Gly Ile Phe Ile Ser Phe Ile Leu Ala Gly Gly
20 25 30

Pro Ala Asp Leu Ser Gly Glu Leu Arg Lys Gly Asp Gln Ile Leu Ser
35 40 45

Val Asn Gly Val Asp Leu Arg Asn Ala Ser His Glu Gln Ala Ala Ile
50 55 60

Ala Leu Lys
65

<210> 19
<211> 68
<212> PRT
<213> Rattus rattus

<400> 19
Val Glu Leu Pro Lys Thr Glu Glu Gly Leu Gly Phe Asn Ile Met Gly

1 5 10 15

Gly Lys Glu Gln Asn Ser Pro Ile Tyr Ile Ser Arg Ile Ile Pro Gly
20 25 30

Gly Ile Ala Asp Arg His Gly Gly Leu Lys Arg Gly Asp Gln Leu Leu
35 40 45

Ser Val Asn Gly Val Ser Val Glu Gly Glu His His Glu Lys Ala Val
50 55 60

Glu Leu Leu Lys
65

<210> 20

<211> 65

<212> PRT

<213> Homo sapiens

<400> 20

Val Lys Val Gln Lys Gly Ser Glu Pro Leu Gly Ile Ser Ile Val Ser
1 5 10 15

Gly Glu Lys Gly Gly Ile Tyr Val Ser Lys Val Thr Val Gly Ser Ile
20 25 30

Ala His Gln Ala Gly Leu Glu Tyr Gly Asp Gln Leu Leu Glu Phe Asn
35 40 45

Gly Ile Asn Leu Arg Ser Ala Thr Glu Gln Gln Ala Arg Leu Ile Ile
50 55 60

Gly
65

<210> 21

<211> 98

<212> PRT

<213> Drosophila melanogaster

<400> 21

Met Val Phe Ala Val Val Asp Lys Ala Gly Thr Val Val Met Ser Asp
1 5 10 15

Gly Glu Glu Leu Asp Ser Trp Ser Val Leu Ile Asn Gly Ala Val Glu
20 25 30

Ile Glu His Ala Asn Gly Ser Arg Glu Glu Leu Gln Met Gly Asp Ser
35 40 45

Phe Gly Ile Leu Pro Thr Met Asp Lys Leu Tyr His Arg Gly Val Met
50 55 60

Arg Thr Lys Cys Asp Asp Cys Gln Phe Val Cys Ile Thr Gln Thr Asp
65 70 75 80

Tyr Tyr Arg Ile Gln His Gln Gly Glu Glu Asn Thr Arg Arg His Glu
85 90 95

Asp Glu

<210> 22
<211> 99
<212> PRT
<213> Homo sapiens

<400> 22
Leu Leu Phe Glu Pro His Ser Lys Ala Gly Thr Val Leu Phe Ser Gln
1 5 10 15

Gly Asp Lys Gly Thr Ser Trp Tyr Ile Ile Trp Lys Gly Ser Val Asn
20 25 30

Val Val Thr His Gly Lys Gly Leu Val Thr Thr Leu His Glu Gly Asp
35 40 45

Asp Phe Gly Gln Leu Ala Leu Val Asn Asp Ala Pro Arg Ala Ala Thr
50 55 60

Ile Ile Leu Arg Glu Asp Asn Cys His Phe Leu Arg Val Asp Lys Gln
65 70 75 80

Asp Phe Asn Arg Ile Ile Lys Asp Val Glu Ala Lys Thr Met Arg Leu
85 90 95

Glu Glu His

<210> 23
<211> 97
<212> PRT
<213> Homo sapiens

<400> 23
Ala Met Phe Pro Val Thr His Ile Ala Gly Glu Thr Val Ile Gln Gln
1 5 10 15

Gly Asn Glu Gly Asp Asn Phe Tyr Val Val Asp Gln Gly Glu Val Asp
20 25 30

Val Tyr Val Asn Gly Glu Trp Val Thr Asn Ile Ser Glu Gly Gly Ser
35 40 45

Phe Gly Glu Leu Ala Leu Ile Tyr Gly Thr Pro Arg Ala Ala Thr Val
50 55 60

Lys Ala Lys Thr Asp Leu Lys Leu Trp Gly Ile Asp Arg Asp Ser Tyr
65 70 75 80

Arg Arg Ile Leu Met Gly Ser Thr Leu Arg Lys Arg Lys Met Tyr Glu
85 90 95

Glu

<210> 24
<211> 97
<212> PRT
<213> Homo sapiens

<400> 24
Cys Met Tyr Gly Arg Asn Tyr Gln Gln Gly Ser Tyr Ile Ile Lys Gln
1 5 10 15

Gly Glu Pro Gly Asn His Ile Phe Val Leu Ala Glu Gly Arg Leu Glu
20 25 30

Val Phe Gln Gly Glu Lys Leu Leu Ser Ser Ile Pro Met Trp Thr Thr
35 40 45

Phe Gly Glu Leu Ala Ile Leu Tyr Asn Cys Thr Arg Thr Ala Ser Val
50 55 60

Lys Ala Ile Thr Asn Val Lys Thr Trp Ala Leu Asp Arg Glu Val Phe
65 70 75 80

Gln Asn Ile Met Arg Arg Thr Ala Gln Ala Arg Asp Glu Gln Tyr Arg
85 90 95

Asn

<210> 25
<211> 103
<212> PRT
<213> Mus musculus

<400> 25
Arg Leu Arg Ser Val Val Tyr Leu Pro Asn Asp Tyr Val Cys Lys Lys
1 5 10 15

Gly Glu Ile Gly Arg Glu Met Tyr Ile Ile Gln Ala Gly Gln Val Gln
20 25 30

Val Leu Gly Gly Pro Asp Gly Lys Ser Val Leu Val Thr Leu Lys Ala
35 40 45

Gly Ser Val Phe Gly Glu Ile Ser Leu Leu Ala Val Gly Gly Asn
50 55 60

Arg Arg Thr Ala Asn Val Val Ala His Gly Phe Thr Asn Leu Phe Ile
65 70 75 80

Leu Asp Lys Asp Leu Asn Glu Ile Leu Val His Tyr Pro Glu Ser

85

90

95

Gln Lys Leu Leu Arg Lys Lys
100

<210> 26
<211> 91
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: unavailable

<400> 26
Arg Glu Asp Phe Glu Ile Ile Arg Val Phe Asp Gly Asn Asn Ser Tyr
1 5 10 15

Arg Ser Gln Ile Ser Arg Asn Ile Val Val Ala Lys His Val Ser Val
20 25 30

Gln Gln Val Arg Asp Ala Ala Leu Arg Arg Phe His Ile Asn Asp Thr
35 40 45

Pro Glu Arg Tyr Tyr Ile Thr Gln Val Val Gly Glu Val Glu Glu Glu
50 55 60

Ile Leu Glu Asp Pro Val Pro Leu Arg Asn Val Lys Arg Pro Glu Gly
65 70 75 80

Lys Arg Ala Gln Ile Phe Ile Arg Tyr Tyr Asp
85 90

<210> 27
<211> 129
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: unavailable

<400> 27
Ser Ile Leu Val Thr Ser Gln Asp Lys Ala Pro Ser Val Ile Ser Arg
1 5 10 15

Val Leu Lys Lys Asn Asn Arg Asp Ser Ala Val Ala Ser Glu Tyr Glu
20 25 30

Leu Val Gln Leu Leu Pro Gly Glu Arg Glu Leu Thr Ile Pro Ala Ser
35 40 45

Ala Asn Val Phe Tyr Ala Met Asp Gly Ala Ser His Asp Phe Leu Leu
50 55 60

Arg His Gly Glu Gly Pro Leu Leu Leu His Leu Ala Ser Pro Val Ala
65 70 75 80

Arg Leu Pro Gln Glu Leu Leu Arg Val Arg Glu Glu Gly Ala Pro Phe
85 90 95

Pro Gly Ser Arg Pro Gln Gly Gly Arg Leu His Gly His Cys Ser Glu
100 105 110

Glu Glu Ala Pro Leu Ala Tyr Arg Ser His Gly Val His Thr Arg Cys
115 120 125

Gly